

REMARKS

Claims 1-18 are now present in this application, with new claims 13-18 being added by present Amendment. Claims 1, 7, 13 and 18 are independent.

Preliminary Amendment

Initially, it appears that a Preliminary Amendment was filed in the parent application (Serial No. 09/820,021), but there is no indication that such a Preliminary Amendment was ever formally made of record in connection with the present continuation application. Accordingly, Applicants have added new claims 13-17 from the aforementioned Preliminary Amendment into the present application, and respectfully request the Examiner's consideration of new claims 13-17, as well as the Examiner's consideration of original claims 1-12 and new claim 18 in connection with the present application.

Information Disclosure Statements

Applicants wish to thank the Examiner for consideration of the documents listed in the Information Disclosure Statements submitted November 19, 2004, March 7, 2005 and March 16, 2005.

Additional Consideration of IDS Requested:

In addition to the aforementioned Information Disclosure Statements, Applicants respectfully request the Examiner's consideration of the

documents submitted with the Information Disclosure Statement of March 28, 2001, a copy of which is attached hereto. The Examiner is respectfully requested to return an initialed PTO-1449 form indicating the Examiner's consideration.

Finally, to make the record clear in connection with the present application, Applicants note that the first document listed on the March 7, 2005 Information Disclosure Statement lists JP 07-32587. This document should read JP 07-325287. As the correct document was submitted with the aforementioned Information Disclosure Statement, it is presumed that the correct document has been considered. However, Applicants respectfully request the Examiner to re-initial and date a copy of the PTO-1449 form attached hereto, indicating the correct reference number.

Priority Information

Applicants thank the Examiner for his indication that priority has been acknowledged and that all certified copies of the priority documents have been received in parent Serial No. 09/820,021.

Drawing Objections

Initially, the Examiner has objected to the drawings, alleging that non-standard electronic elements 11-15 in figure 4 and 21-26 in figure 10 should have descriptive labels. The Examiner has further requested that figure 21 be labeled as "Prior Art".

In response to the Examiner's drawing objections, Applicants have included a relabeled version of figure 4 of the present application, re-labeling

elements 11-15 as requested by the Examiner. Further, with regard to figure 21, Applicants have labeled figure 21 as "Prior Art".

However, with regard to the Examiner's objection of figure 10, Applicants respectfully traverse. Figure 10 includes a sectional view of a liquid crystal panel, and therefore it is not believed to require any further labeling as one can easily understand the elements of the figure without labels. One would easily know that elements 25 and 26 are polarizers, elements 23 and 24 are phase compensators, and elements 21 and 22 are substrates. Further, it would be difficult to easily provide labels to the various sub-aspects of substrates 21 and 22 including, for example, picture element electrode 32, alignment film 33, counter electrode 36 and alignment film 37. Accordingly, withdrawal of this drawing objection is respectfully requested.

Example Embodiment of the Present Application

A liquid crystal display device of at least one embodiment of the present application improves response characteristics of a liquid crystal display device over the conventional overshoot driving techniques (see the first full paragraph of page 22 of the present application for example). Specifically, in connection with the present application, an extreme transmittance of the voltage of a liquid crystal panel is set to a voltage equal to or lower than a lowest gray scale level voltage. Thus, when a voltage overshooting the lowest gray scale level voltage (lower dedicated overshoot driving voltage) is applied, the transmittance goes through a value

corresponding to the lowest gray-level voltage and then reaches a value corresponding to the overshoot voltage.

To explain further, in such a system of an example embodiment, the lowest gray-level voltage is set to a value higher than the voltage corresponding to the extreme transmittance, and the voltage overshooting the lowest gray-level voltage is set to a value lower than the voltage corresponding to the extreme transmittance. When this lower dedicated overshoot-driving voltage is applied, the transmittance goes through a value corresponding to the lowest gray-level voltage and through the extreme value, and then reaches a value corresponding to the overshoot voltage. This is described throughout pages 19-21 of the present application.

As such, the response time required for a fall is almost the same, both in the case of applying the lowest gray-level voltage and applying the overshoot voltage. Therefore, the application of the overshoot voltage can reduce the time for the transmittance to reach a value corresponding to the lowest gray-level voltage. In other words, in a liquid crystal panel that exhibits an extreme transmittance at a voltage equal to or lower than the lowest gray-level voltage, the liquid crystal molecules and liquid crystal layer with application of the lowest gray-level voltage has a substantially different orientation state from that without the application of a voltage. Therefore, further relaxation is possible.

As such, the transmittance changes more steeply with time as compared to the case of overshoot-driving of a liquid crystal panel having such V-T characteristics that exhibit a constant transmittance (i.e. having no extreme value) over the voltage range from the lowest gray-level voltage or

less. This is illustrated with regard to figures 5A and 5B of the present application for example. An example of a concrete voltage corresponding to the extreme transmittance at the voltage equal to or lower to the lowest gray-level voltage is 2.1 volts for example.

Prior Art Rejection under 35 U.S.C. § 102(b)

The Examiner has rejected claims 1 and 3 under 35 U.S.C. § 102(b) as being anticipated by Usui et al. (U.S. Patent No. 5,465,102). This rejection is respectfully traversed.

Usui et al.:

Usui et al. is directed to an image display apparatus. Throughout columns 5 and 6 of Usui et al., basic overshoot and undershoot driving techniques are discussed wherein when a gray scale signal of a certain pixel on the liquid crystal panel 20 is “two” in one frame and needs to become “ten” in the next frame, as shown in figure 4 for example, a gray scale value of “10” is converted to a gray scale signal that represents a gray scale of “16”, to thereby “overshoot” the desired value and improve the response speed of the liquid crystal. As such, the liquid crystal quickly reaches the desired value of “10” in the next frame. This is a basic teaching of utilization of overshoot driving techniques.

Similarly, basic undershoot driving techniques are discussed wherein a pixel is “10” in one frame and needs to become “3” in the next frame. In such an instance, the original gray scale signal “3” is converted to a gray scale signal “0” to improve the response speed of the liquid crystal. Such

basic teachings of overshoot and undershoot driving techniques¹, however, fail to teach or suggest the liquid crystal liquid display device of claim 1 as will be explained as follows.

Distinctions over Usui et. al.

As set forth in claim 1 for example, a liquid crystal display device is claimed wherein the liquid crystal panel not only exhibits overshoot driving, but also includes the limitation of “an extreme transmittance at a voltage equal to or lower than a lowest gray-level voltage”. At least such a limitation is not taught or suggested by Usui et al.

The liquid crystal display device of claim 1 improves response characteristics of a liquid crystal display device over the conventional overshoot driving techniques as taught in the Usui et al. patent. Specifically, an extreme transmittance of the voltage of a liquid crystal panel is set to a voltage equal to or lower than a lowest gray scale level voltage. Thus, when a voltage overshooting the lowest gray scale level voltage (lower dedicated overshoot driving voltage) is applied, the transmittance goes through a value corresponding to the lowest gray-level voltage and then reaches a value corresponding to the overshoot voltage. Thus, more than the simple overshoot driving of Usui et. al. is needed.

Further, in a liquid crystal panel that exhibits an extreme transmittance at a voltage equal to or lower than the lowest gray-level voltage, the liquid crystal molecules and liquid crystal layer with application of the lowest gray-level voltage has a substantially different orientation state

¹ See column 5, lines 35-52 of the Usui et al. patent

from that without the application of a voltage. Therefore, further relaxation is possible.

Accordingly, for at least such reasons, Applicants respectfully submit that Usui et al. fails to meet at least the limitation of “an extreme transmittance of the voltage equal to or lower than a lowest gray-level voltage” as set forth in claim 1. Accordingly, withdrawal of the Examiner’s rejection is respectfully requested. Further, withdrawal of the Examiner’s rejection of claim 3 is respectfully requested, for at least reasons somewhat similar to those set forth with regard to claim 1.

Prior Art Rejections under 35 U.S.C. § 103

The Examiner has rejected claim 5 under 35 U.S.C. § 103 as being unpatentable over Usui et al. in view of Yuzu et al. This rejection is respectfully traversed.

With regard to the limitations of claim 1, Applicants respectfully submit that even assuming *arguendo* that Yuzu et al. could be combined with Usui et al., which Applicants do not admit, the teachings of Yuzu et al. would fail to makeup for at least the aforementioned deficiencies of Usui et al. with respect to claim 1. Accordingly, for at least the reasons previously presented regarding claim 1 of the present application, Applicants respectfully submit that claim 5 is allowable over the alleged combination of Usui et al. and Yuzu et al., even assuming *arguendo* that they could be combined. Accordingly, withdrawal of the rejection is respectfully requested.

The Examiner has further rejected claims 7-9 under 35 U.S.C. § 103 as being unpatentable over Usui et al. in view of Ichiro et al. This rejection is respectfully traversed.

As acknowledged by the Examiner, Usui et al. fails to teach or suggest at least the limitation of “a capacitance ratio of the storage capacitor to the liquid crystal capacitor being one or more” as set forth in claim 7 of the present application. The Examiner has cited Ichiro et al. to make-up for such a limitation. This is respectfully traversed.

The Examiner has specifically referenced the abstract of Ichiro et al. Applicants fail to see, from anywhere in the abstract, any teaching or suggestion of “a capacitance ratio of the storage capacitor to the liquid crystal capacitor being one or more” as set forth in claim 7 of the present application. Accordingly, the Examiner is respectfully requested to specifically provide such teaching, or to withdrawal the rejection. Accordingly, Applicants respectfully request withdrawal of the Examiner's rejection of claim 7 and 9 over the alleged combination of Usui et al. and Ichiro et al., even assuming *arguendo* that the references could be combined.

Further, Applicants respectfully submit that the Examiner has not provided proper motivation for combining the teachings of Usui et al. with those of Ichiro et al. Applicants direct the Examiner's attention to two recent cases decided by the Court of Appeals for the Federal Circuit (CAFC), In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed.Cir. 1999) and In re Kotzab, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed.Cir. 2000).

Both of these cases set forth very rigorous requirements for establishing a *prima facie* case of obviousness under 35 U.S.C. §103(a).

To establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the Applicants. The motivation suggestion or teaching may come explicitly from one of the following:

- (a) the statements in the prior art (patents themselves)
- (b) the knowledge of one of ordinary skill art, or in some cases,
- (c) the nature of the problem to be solved.

See Dembiczak 50 USPQ at 1614 (Fed.Cir. 1999).

In order to establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), the Examiner must provide particular findings as to why the two pieces of prior art are combinable. See Dembiczak 50 USPQ2d at 1617.

Broad conclusory statements standing alone are not "evidence".

The Examiner has merely alleged that it would be obvious to modify the teachings of Usui et al. with the noted teaching of Ichiro et al., "...because both references related to driving of an LCD device". Such an argument that it "could be" possible to modify teachings of one reference in view of the teachings of another reference is not the test of obviousness. To the contrary, the Examiner must show why one of ordinary skill in the art would have combined the teachings of the references, absent any viewing of Applicants' invention in hindsight.

In order to make a proper combination of references, the Examiner must provide evidence as to why one of ordinary skill in the art would have been motivated to select and combine the referenced teachings. Relying on

common knowledge or common sense of a person of ordinary skill in the art without any specific hint or suggestion of this in a particular reference is not a proper standard for reaching the conclusion of obviousness. See *In re Sang Lee*, 61 USPQ 2d 1430 (Fed. Cir. 2002).

Somewhat similarly, the Examiner cannot rely on obvious design choice as a reason for combining teachings of the various references. This is again not the proper standard for obviousness. If the Examiner is relying on personal knowledge to support a finding of what is known in the art, the Examiner **must provide** an Affidavit or Declaration setting forth specific factual statements and explanation to support the finding. See 37 CFR 1.104(d)(2) and MPEP 2144.03(c). Accordingly, Applicants respectfully challenge the Examiner's use of design choice and respectfully require the Examiner to withdraw the rejection or provide an Affidavit or Declaration as set forth above if the rejection is to be maintained.

Accordingly, for at least such additional reasons, Applicants respectfully request withdrawal of the Examiner's rejection of claims 7-9 in connection with the present application.

The Examiner has further rejected claim 11 under 35 U.S.C. § 103 as being unpatenable over Usui et al. and Ichiro et al., and further in view of Yuzu et al. This rejection is respectfully traversed.

Applicants respectfully submit that it would not be obvious for one of ordinary skill in the art to combine the teachings of Usui et al. and Ichiro et al. for the reasons set forth above, and further submit that the Examiner has not provided adequate motivation for combining the teachings of Yuzu et al. with either one or both of Usui et al. and Ichiro et al. Further,

Applicants respectfully submit that even assuming *arguendo* that the references could be combined, Yuzu et al. would still fail to make-up for at least the aforementioned deficiencies of Usui et al. and Ichiro et al. with respect to independent claim 7 of the present application. Therefore, for at least reasons previously presented regarding independent claim 7, Applicants respectfully submit that claim 11 of the present application is patentable over the alleged combination of references provided by the Examiner, even assuming *arguendo* that the could be combined.

New Claims

As indicated above, Applicants have added a Preliminary Amendment to the parent application, which apparently was not entered into the present continuation application. In this Preliminary Amendment, new claims 13-17 were added, wherein these new claims are represented in the present Amendment. With respect to independent claim 13, Applicants respectfully suggest that this claim is allowable over the prior art of record, in that the prior art fails to teach or suggest at least “the liquid crystal panel exhibits, in its voltage-transmittance characteristics, a maximum or minimum transmittance at a voltage lower than a lowest gray-level voltage”. Accordingly, allowance of new claims 13-17 in connection with the present application is also earnestly solicited.

In addition, Applicants have added new independent claim 18 in connection with the present application. Claim 18 is allowable over the prior art of record for at least reasons somewhat similar to those previously presented regarding independent claim 7 of the present application.

Allowable Subject Matter

Applicants wish to thank the Examiner for the indication that claims 2, 4, 6, 10 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten into independent form including all of the limitations of the base claim and any intervening claims. As the independent claims in connection with the present application are believed to be allowable in their current form, no such amending of the claims to place them in independent form has been made at this time.

CONCLUSION

Accordingly, in view of above remarks, reconsideration of the objections and rejections and allowance of each of claims 1-18 in connection with the present application is earnestly solicited.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned, at the number of the undersigned listed below.

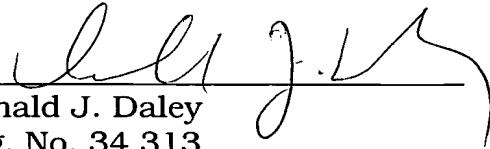
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37

C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY & PIERCE, PLC

By


Donald J. Daley
Reg. No. 34,313

DJD:bof

P.O. Box 8910
Reston, VA 20195
(703) 668-8000

AMENDMENTS TO THE DRAWINGS

Drawing corrections are attached hereto. Upon approval of the drawing corrections, new Formal Drawings of each of figures 4 and 21 will be submitted in connection with the present application.

COPY



Attorney Docket No. 55,750 (45672)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: T. Adachi, et al.

U.S.S.N.: Unassigned

Art Unit: Unassigned

FILED: Herewith

Examiner: Unassigned

FOR: LIQUID CRYSTAL DISPLAY DEVICE

CERTIFICATE OF EXPRESS MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 (Express Mail Label No. EL730721694US), and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231. on March 28, 2001

By: 

Donna M. Pomase

**INFORMATION DISCLOSURE STATEMENT
(SUBMISSION AFTER FILING OF AN APPLICATION
BUT BEFORE FINAL REJECTION OR NOTICE OF ALLOWANCE)**

Assistant Commissioner for Patents
Washington, D.C. 20231

Date: March 28, 2001

Sir:

Pursuant to 37 C.F.R. §§ 1.97 and 1.98, Applicant(s) hereby submit(s) an Information Disclosure Statement for consideration by the Examiner.

I. LIST OF PATENTS, PUBLICATIONS OR OTHER INFORMATION

The patents, publications or other information submitted for consideration by the Office are listed on PTO-1449, attached hereto.

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II. COPIES

- a. X Submitted herewith is a legible copy of (i) each U.S and foreign patent; (ii) each publication or that portion which caused it to be listed; and (iii) all other information or that portion which caused it to be listed.
- b. Each of the patents, publications or other information listed on the attached PTO-1449 was previously cited by or submitted to the USPTO in connection with U.S.S.N.: 08/000,000, to which the subject application claims the benefit of the earlier filing date. As such, a copy of each is not included herewith pursuant to 37 C.F.R. § 1.98(d).

III. CONCISE EXPLANATION OF THE RELEVANCE
(check at least one box)

- a. X Except as may be indicated below in (b), all of the patents, publications or other information are in the English language or were cited in an English language Search Report, a copy of which is attached hereto (concise explanation not required).
- b. X A concise explanation of the relevance of all patents, publications or other information listed that is not in the English language is as follows:

- English translation for reference(s) .
- X English abstract for reference(s) BA.
- English translation of search report/ official communication.
- Copy of PCT/EPO Search Report.
- Reference BA also referred to in background of subject application.

- c. The following additional information is provided for the Examiner's consideration:

- Copy of EPO Search Report.
- Copy of PCT Search Report.
- Copy of Official Communication from the Patent Office.
- English translation of search report/ official communication.
- Copy of .

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IV. THIS IDS IS BEING FILED UNDER 37 C.F.R. § 1.97(b)
(check one box)

- a. X within three months of the filing date of a national application (37 C.F.R. § 1.97(b) (1)). No fee or certification is required.
- b. _____ within three months of the date of entry of the national stage as set forth in §1.491 in an international application (37 C.F.R. § 1.97(b) (2)). No fee or certification is required.
- c. _____ before the mailing date of a first Action on the merits (37 C.F.R. § 1.97(b) (3)). No fee or certification is required. In the event that a first Office Action on the merits has been issued, please consider this IDS under 37 C.F.R. § 1.97(c) and see the certification under 37 C.F.R. § 1.97(e) below, or, if no certification has been made, charge our deposit account a fee in the amount of \$230.00 as required by 37 C.F.R. § 1.17(p).

V. THIS IDS IS BEING FILED UNDER 37 C.F.R. § 1.97(c):
(check one box)

before the mailing date of a Final Office Action under 37 C.F.R. § 1.113 (See 37 C.F.R. § 1.97(c) (1)) or before the mailing date of a Notice of Allowance under 37 C.F.R. § 1.311 (See 37 C.F.R. § 1.97(c) (2)).

- a. _____ No certification; therefore, a fee in the amount of \$230.00 is required by 37 C.F.R. § 1.17(p).
- or
- b. _____ See the certification below. No fee is required.

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VI. CERTIFICATION UNDER 37 C.F.R. § 1.97(e) (check only one box)

The undersigned hereby certifies that

- a. ☐ each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS; or
- b. ☐ no item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application or, to the best of my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this statement.
- c. ☐ Some of the items of information were cited in a communication from a foreign Patent Office. As to this information, the undersigned certifies that each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby certifies that no item of this remaining information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application or, to the best of my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this statement.

VII. FEE PAYMENT (check one)

- ☐ Enclosed please find a check in the amount of \$230.00 for the above-indicated fee.
- ☐ Please charge Deposit Account No. 04-1105 in the amount of \$230.00 for the above-indicated fee.
- ☒ No fee is required.

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If the Examiner has any questions concerning this IDS, he/she is requested to contact the undersigned. If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule, with a petition if necessary, and charge the appropriate fee to Deposit Account No. 04-1105.

Respectfully submitted,

Date: March 28, 2001

David A. Tucker
David A. Tucker (Reg. No. 27,840)

Dike, Bronstein, Roberts & Cushman
Intellectual Property Practice Group
EDWARDS & ANGELL, LLP
130 Water Street
Boston, MA 02109
Telephone: (617) 523-3400

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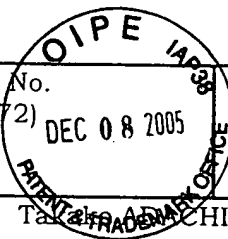
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**Information Disclosure
Statement**

PTO - 1449

Atty. Docket No.
55,750 (45672)

Serial No.
Unassigned



Applicant(s): Takauchi

Filing Date
Herewith

Art Unit
Unassigned

UNITED STATES PATENT DOCUMENTS

Exam. Initials	Ref. No.	Document Number	Date	Name	Class	File Date
	AA	USSN: 09/632,878				8/4/2000

FOREIGN PATENT DOCUMENTS

Exam. Initials	Ref. No.	Document Number	Date	Country or Office	Class	
	BA	04288589 A	10/1992	JAPAN		

OTHER DOCUMENTS (INCL. TITLE, AUTHOR, DATE, PAGES, ETC)

Exam. Initials	Ref. No.	

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Examiner:

Date:

Form PTO-1449

INFORMATION DISCLOSURE CITATION IN AN APPLICATION

(Use several sheets if necessary)

ATTY DOCKET NO.
5072D-00004/US/COA

APPLICANT(S)
Takako ADACHI et al.

FILING DATE
July 18, 2003

APPLICATION NO.
10/622,870

CONF. NO.
Unknown

GROUP
Unknown

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION	
						YES	NO
MF	JP 07-32587 JP 7-32587	12/12/1995	JAPAN			ABST.	
MF	JP 06-265939	09/22/1994	JAPAN			ABST.	
MF	JP 06-160891	06/07/1994	JAPAN			ABST.	
MF	JP 10-253942	09/25/1998	JAPAN			ABST.	
MF	JP 10-039837	02/13/1998	JAPAN			ABST.	
MF	JP 09-081083	03/28/1997	JAPAN			ABST.	
MF	JP 07-199149	08/04/1995	JAPAN			ABST.	
MF	JP 11-326957	11/26/1999	JAPAN			ABST.	
MF	JP 05-273539	10/22/1993	JAPAN			ABST.	
MF	JP 08-286176	11/01/1996	JAPAN			ABST.	
MF	JP 07-333617	12/22/1995	JAPAN			ABST.	
MF	JP 08-248384	09/27/1996	JAPAN			ABST.	
MF	JP 09-080390	03/28/1997	JAPAN			ABST.	

OTHER DOCUMENTS (Include Name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.)

MF	MF	Japanese Office Action dated December 7, 2004 and English translation thereof

EXAMINER	M. G. [Signature]	DATE CONSIDERED	8/29/05
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EXAMINER: Initial if citation considered, whether or not citation is in conformance with M.P.E.P. 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

DJD/bof

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